



# Multi-Agency Radiological Surveys and Site Investigation Manual (MARSSIM), August 2000

The Multi-Agency Radiological Surveys and Investigation Manual addresses the need for nationally consistent approach to conducting radiological surveys and investigations at potentially contaminated sites. This need was recognized as a result of variability of radioactive materials that have been produced, processed, used, and stored at thousands of sites throughout the United States. Many of these sites, ranging in size, from Federal weapons production facilities covering hundreds of square kilometers to the nuclear medicine departments of small hospitals were at one time or are now radioactively contaminated. The owners and managers of these sites need to determine level of sites contamination for cleanup and restricted or unrestricted public use purposes.

## Background

The MARSSIM was developed as a collaborative effort by several federal agencies including the:

- U.S. Environmental Protection Agency (EPA);
- Nuclear Regulatory Commission (NRC);
- U.S. Department of Energy (DOE); and
- U.S. Department of Defense (DOD).

The MARSSIM received a Hammer Award from the Office of the Vice president, April 1999. DOE Headquarters and field staff and contractors were recognized for their efforts.

There are two MARSSIM supplements under development: (1) Subsurface Soil Surveys; and (2) Materials and Equipment Surveys.

## Objectives

- Provides comprehensive guidance on planning, conducting, assessing and documenting radiological surveys of sites with radioactive contaminants in surface soil and on building surfaces with a specific

focus on the final status surveys that are carried out to demonstrate compliance with cleanup regulations.

- Provides a consistent approach to identify data quality needs and limitations of conducting a survey.
- Makes collective knowledge and experience in radiological surveys widely available.

## Audience

The manual was developed to support project managers and field technical personnel in planning, executing and reviewing radiological surveys and site investigation activities.

## Scope

The Manual describes generally acceptable approaches for:

- planning and designing scoping, characterization, remediation-support, and final status surveys for sites with surface soil and building surface contamination;
- Historical Site Assessment (HSA);
- QA/QC in data acquisition and analysis;

- Conducting surveys;
- Field and laboratory methods and instrumentation; and
- interfacing with radiation.

The Manual does not address:

- legal or policy for site cleanup;
- packaging and transportation of wastes for disposal;
- decontamination and stabilization techniques;
- environmental pathway modeling and ecological endpoints;
- other media, including subsurface soil, surface or subsurface water, biota, air, sediments or volumetric contamination, construction materials, and equipment;
- Hazards posed by chemical contamination; and
- statistical test for use at all sites.

## Approach

- Performance-based approach is used for demonstrating compliance with cleanup regulations.
- Graded approach is adopted for effective use of resources.

## Manual Description

The Manual consists of nine (9) chapters covering:

- Introduction,
- overview of the radiation survey and site investigation process,
- historical site assessment,

- survey considerations,
- survey planning and design,
- field methods and instrumentation,
- sampling and preparation for lab measurements,
- interpretation of survey results, and
- Quality assurance and quality control.

Information on specific subjects to radiation site investigation can be found in the appendices.

## Benefits

- Provides consistent approach to conducting radiation surveys and site investigation that is acceptable to Federal agencies and most state regulatory programs to be used in their regulatory programs.
- Offers improvements over conventional approaches to radiation surveys in terms of costs, resources, and credibility.
- Provides flexibility to select appropriate survey process to meet customer data quality objectives in many existing statutory programs, such as CERCLA and, RCRA.

## Access

MARSSIM, Revision 1 (August 2000) with the June 2001 updates is available at:  
<http://www.epa.gov/radiation/marssim/obtain.htm>.

**Questions of policy or questions requiring policy decisions will not be dealt with in EH-41 Information Briefs unless that policy has already been established through appropriate documentation. Please refer any questions concerning the subject material covered in this Information Brief to Harold Peterson at: [harold.peterson@eh.doe.gov](mailto:harold.peterson@eh.doe.gov); 202-586-9640 or Emile Boulos at: [emile.boulos@eh.doe.gov](mailto:emile.boulos@eh.doe.gov); 202-586-1306.**